N.S.W. DEPARTMENT OF AGRICULTURE.

BIOLOGICAL BRANCH - DIVISION OF SCIENCE SERVICES.

P L A N T D I S E A S E S U R V E Y.

for the

TWELVE MONTHS ENDING 30th JUNE, 1957.

TWENTY-SEVENTH ANNUAL REPORT.

Notes compiled by officers of the Plant Pathological Section of the Biological Branch, New South Wales Department of Agriculture, Sydney, Australia.

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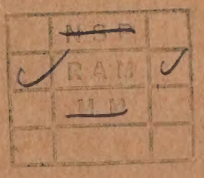

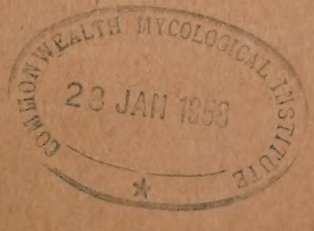

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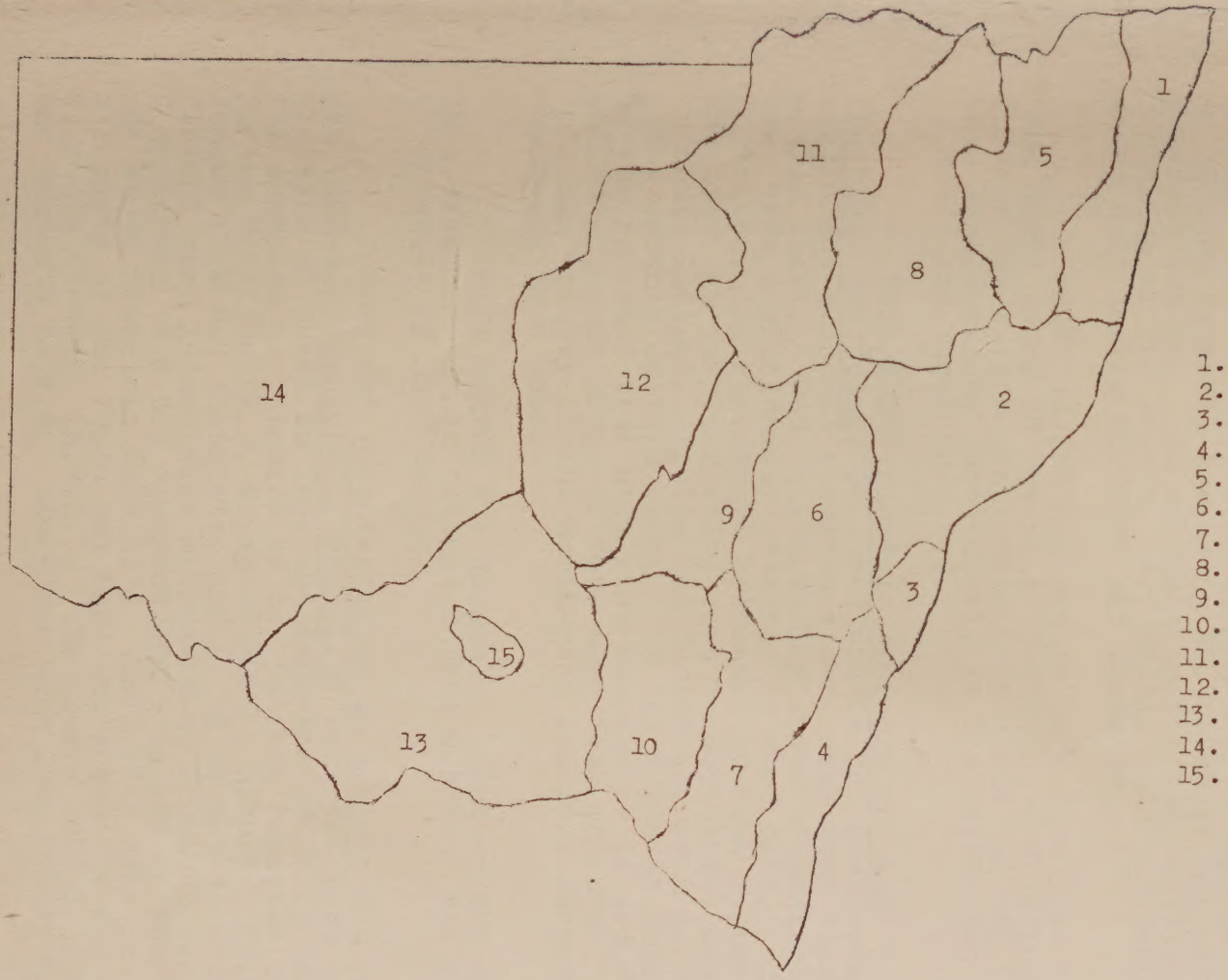

DISTRICTS OF NEW SOUTH WALES.

KEY.

1. North Coast (N.C.)
2. Central Coast (C.C.)
3. Metropolitan Area (M.A.).
4. South Coast (S.C.)
5. Northern Tableland (N.T.)
6. Central Tableland (C.T.)
7. Southern Tableland (S.T.)
8. North Western Slope (N.W.S.)
9. Central Western Slope (C.W.S.)
10. South Western Slope (S.W.S.)
11. North Western Plain (N.W.P.)
12. Central Western Plain (C.W.P.)
13. Riverina (R).
14. Western Division (W.D.)
15. Murrumbidgee Irrigation Areas (M.I.A.).

DEPARTMENT OF AGRICULTURE.

NEW SOUTH WALES

BIOLOGICAL BRANCH - DIVISION OF SCIENCE SERVICES

PLANT DISEASE SURVEY - 1956/7

TWENTY-SEVENTH ANNUAL REPORT.

CEREALS.

WHEAT.

The 1956-57 season ended with the smallest wheat harvest since 1946-47. In all parts of the wheat belt the rainfall was well above average and, in most parts of the centr and south, was almost double the average annual rainfall. As a result it was possible for farmers to sow only approximately half the intended acreage. Approximately 28,000,000 bushels were harvested from approximately 1,713,000 acres, making an average yield of 16.3 bushels per acre, compared to a yield of 57,100,000 bushels, averaging 20.9 bushels per acre, for the previous season. In contrast to the wet conditions at the beginning of the season, very little rain was recorded over the wheat belt during November and December.

FROST INJURY appears to have been less troublesome than usual owing to the mild conditions prevailing. However, farmers had to sow crops when they could and the early sown ones were damaged, particularly in the north-west and at Junee (S.W.S.) and Tumut (S.W.S.).

STEM RUST (Puccinia graminis tritici) and LEAF RUST (Puccinia triticina) occurred widely but developed late in the season and seasonal conditions were such that damage was generally light. Odd late maturing crops of susceptible varieties were significantly affected by stem rust. In southern districts, the resistance possessed by Gabo appeared to be adequate and only varieties such as Bencubbin, Koala, Pinnacle, Quadrat, Insignia, Brolga and Curlew appeared to carry significant amounts of stem rust. In the north at Tamworth (N.W.S.) it was reported that stem rust was severe in crops of Broughton whilst adjacent areas of Gabo were less affected. Broughton is a new variety in the north-west and is a farmer's selection reputedly from Gabo.

HAIL DAMAGE was unusually light on the wheat areas this season. It is estimated that 0.66% of the yield was lost as a result of hail damage.

FOOT ROT (Helminthosporium sativum and various fungi) and TAKE-ALL (Ophiobolus graminis) were the most important diseases of wheat in 1956 and were particularly damaging in the south-west. Losses of to 75% were reported in some crops in the Berrigan (R.), Young (S.W.S.), Albury (S.W.S.) and Parkes (C.W.S.) districts, and of up to 50% at Griffith (M.I.A. Overall crop losses were estimated at 1 bushel per acre in the Cootamundra (S.W.S.) district and 5 to 10% in the West Wyalong and Wagga districts (S.W.S.). Root rots were prevalent in all parts of the State and were the commonest diseases in the G Gunnedah district (N.W.S.). The Dubbo (C.W.S.), Mudgee (C.T.) and Tamworth (N.W.S.) districts were less affected.

BUNT (Tilletia caries and T. foetida) was noted in three crops in the Lake Cargelligo (C.W.P.) area and was present in one delivery to the Australian Wheat Board from a north-central area. Otherwise it was not recorded.

FLAG SMUT (Urocystis tritici). No records of this disease were received at the Biological Branch during the year.

LOOSE SMUT (Ustilago tritici) was noted in small amounts in all districts. This disease seems to be becoming more prevalent and in occasional crops caused small losses. The continuous use of home grown seed has been responsible for the build-up. Seed originating from the Department's pure seed scheme was noticeably free from loose smut.

GLUME BLOTCH (Septoria nodorum) and LEAF SPOT (S. tritici) occurred widely but had little affect on the crops.

EYESPOT (Cercosporella herpotrichoides) was recorded for the first time in N.S.W. in hybrid winter wheat lines growing in plots at the Agricultural Research Institute, Wagga (S.W.S.), in October, 1956. It was later found to be quite widespread in the region.

YELLOW DWARF (Virus) was reported to be present in the Tamworth (N.W.S.) district by a visiting plant pathologist.

OATS.

STEM RUST (Puccinia graminis avenae) did not build up until late in the season when the majority of crops were too far advanced to be much affected in yield. In south-western districts, however, some late crops were severely affected. Main crop varieties were all susceptible, including Burke which has sometimes been credited with a moderate resistance to stem rust. The spring sown tablelands' varieties Garry and Lampton still possess resistance however.

CROWN RUST (Puccinia coronata) was generally found in association with stem rust but no reports of appreciable damage have been received.

LOOSE SMUT (Ustilago avenae) occurred widely as usual but damage in most districts was negligible. It was, however, more prevalent than is desirable in the Cootamundra (S.W.S.) and Parkes (C.W.S.) districts.

LEAF SPOT (Helminthosporium avenae) was observed in a late sown variety trial at Yanco Experiment Farm (M.I.A.), where the varieties Fulmark and Ballidu were fairly heavily infected and the remaining varieties were lightly infected. Fulmark, however, later produced the top grain yield.

DAMPING OFF and PURPLE PATCH (Rhizoctonia solani) was quite severe in early sown crops of Algerian at Inverell (N.W.S.) and Mudgee (C.T.). The weather was warm and showery at the time and agronomists reported that the disease had occurred in early autumn in each of the last four seasons. It was also observed in a 65 acre crop at Cootamundra (S.W.S.) where 90% of the plants were affected and 15 to 20% of the plants were killed.

FROST DAMAGE was very severe in some southern districts in crops of oats sown early for feed purposes, which could not be grazed because of waterlogged soil conditions. In other districts frost damage was apparently not a major disease and only caused loss in odd cases.

Practically the whole area sown in autumn in the Tumut (S.W.S.) district was frosted to some extent. It was estimated that the overall yield of crops in the Tumbarumba shire was reduced by 50%.

In the Junee (S.W.S.) district, it was estimated that the overall grain yields of early sown crops were reduced by 30%.

Head frosting was observed in some early sown crops in the Young (S.W.S.) district and some flag frosting occurred at the New England (N.T.) and Leeton (M.I.A.) Experiment Farms.

BARLEY.

No reports of barley diseases were received at the Biological Branch this season.

MAIZE.

FROST DAMAGE was widespread. Firstly the unusually late frosts damaged the plants soon after emergence, particularly at Glen Innes (N.T.). Secondly, owing to the cool season and the lateness of the crop, frosts in April had an adverse effect in the Tumut district (S.W.S.).

HEAD SMUT (Sphacelotheca reiliana) was recorded from Richmond (M.A.). Approximately 2% of the plants in the crop concerned were affected. Last year an infection of 100% was observed in a crop of Victory at Richmond.

LEAF BLIGHT (Helminthosporium turcicum) was observed in coastal districts.

RUST (Puccinia sorghi) was quite severe on the central and north coasts. In many cases spore production was suppressed by Darluca filum.

COB and STALK ROTS (Fusarium spp. and other fungi) were not as prevalent as in past seasons, presumably owing to the dry summer.

BOIL SMUT (Ustilago zeae). A survey of the Bathurst district for Boil Smut was carried out in March. The area had not been surveyed since 1954 but again no trace of the disease was found. The disease has not now been recorded for 17 years, but owing to its reappearance at Bathurst previously, after 16 years in which it was not recorded, it is still too soon to know whether the fungus has been eradicated.

SORGHUM.

KERNEL SMUT (Sphacelotheca sorghi) was observed in the Berrigan (R.) and Tamworth (N.W.S.) districts, but losses were negligible.

BROOM MILLET.

FROST DAMAGE. Owing to the lateness of the crop, April frosts were responsible for poor quality of the harvest at Tumut (S.W.S.).

RICE.

No rice diseases were recorded.

SUGAR CANE.

(Information was kindly supplied by the Colonial Sugar Refining Co. Ltd.).

During the 1956 crushing season in N.S.W., 294,087 tons of cane were crushed. An estimated 4,515 tons were lost due to disease.

RED ROT (Physalospora tucumanensis) was again the most serious disease but caused a loss of approximately 4,500 tons compared with 217 tons the previous season.

FIJI DISEASE (Virus) caused an estimated loss of 15 tons but the other virus diseases, MOSAIC and CHLOROTIC STREAK, caused negligible losses.

RATOON STUNTING (Virus) continues to be widespread but the hot water treatment of seed cane is expected to bring this disease under control.

PINEAPPLE DISEASE (Ceratostomella paradoxa). The general use of mercurial fungicides has eliminated losses from this source.

RED STRIPE (Xanthomonas rubrilinians) was present in trace amounts only.

MISCELLANEOUS GRASSES.

In spite of the dry weather there were sufficient showers to encourage the development of SLIME MOULDS. These were reported on lawns and caused some injury as the result of the smothering of large patches in a pasture at Candelo (S.C.). A similar occurrence was reported from Quirindi (N.W.S.).

BENT GRASS (Agrostis tenuis).

BROWN PATCH (Rhizoctonia solani) was very much less prevalent than usual. The absence of hot humid weather in the summer no doubt influenced its occurrence.

DOLLAR SPOT (Sclerotinia homeocarpa) was also not severe though outbreaks were quite numerous on golf and bowling greens in coastal areas.

LEAF BLIGHT (Helminthosporium sp.) was recorded from the Metropolitan Area.

SEEDLING BLIGHT was reported from Wauchope (C.C.) and several centres in the Metropolitan Area on seedlings in golf and bowling greens. The greens died in patches with a characteristic yellowing and browning of the leaves. In some cases there was also a reddish discolouration. This trouble has occurred for many years and no satisfactory conclusion has yet been reached as to the cause. The roots of affected seedlings are usually packed with oospores of Cladochytrium sp. or Olpidium brassicae and Curvularia lunata is frequently present on the dead leaf tissue.

LEAF SPOT (Mastigosporium rubricosum) continues to occur annually at Mt. Wilson (C.T.) where it was first recorded some years ago.

BENT GRASS (Agrostis sp.)

SMUT (Tilletia pallida) was recorded from Ben Lomond (N.T.).

COCKSFOOT (Dactylis glomerata).

RUST (Puccinia sp.) was quite severe at the New England Experiment Farm, Glen Innes (N.T.), in late autumn, but for some reason pustule development was largely suppressed. There was considerable necrosis however.

LEAF SPOT (Mastigosporium rubricosum) was severe in the autumn at Mt. Wilson (C.T.).

COLUMBUS GRASS (Sorghum almum).

FOOT and ROOT ROT were responsible for the dying of clumps at Gunnedah (N.W.S.). A Helminthosporium and a Fusarium sp. were isolated.

COUCH (Cynodon dactylon).

BROWN PATCH (Rhizoctonia solani), as on bent grass, was much less troublesome this season than usual.

LEAF BLIGHT (Helminthosporium cynodontis) caused considerable damage to a metropolitan lawn in January. The dead leaves bore numerous pycnidia of Pleospora trichostoma, which might well be the perfect stage of H. cynodontis.

KIKUYU (Pennisetum clandestinum).

STOLON ROT (Rhizoctonia solani) caused dying out in a soakage area at Doon Doon (N.C.).

PASPALUM (Paspalum dilatatum).

ERGOT (Claviceps paspali) was prevalent as usual.

PHALARIS (Phalaris tuberosa).

ERGOT (Claviceps phalaridis) was again recorded widely in seed crops in southern N.S.W. Previously recorded in this Survey as Claviceps sp., this pathogen has now been described by J. Walker as Claviceps phalaridis n.sp.

PRAIRIE GRASS (Bromus unioloides).

LEAF SPOT (Rhyncosporium secalis) was very severe in November in the Barooga-Tocumwal area (R.). SMUT (Ustilago bromivora) was also present.

RYE GRASSES (Lolium spp.).

RUST (Puccinia graminis lolii) was observed to be severe in the Clarence region (N.C.) in spring.

EYESPOT (Ovularia pusilla) was recorded for the first time in N.S.W. on Wimmera Rye Grass (L. rigidum) at the Agricultural Research Institute, Wagga (S.W.S.).

FIELD AND FODDER CROPS.

SUBTERRANEAN CLOVER (Trifolium subterraneum).

RUST (Uromyces trifolii subterranei) occurred as usual but no reports of serious outbreaks were received at the Biological Branch.

SCORCH or NORTHERN ANTHRACNOSE (Kabatiella caulivora) was recorded in the subterranean clover strain observation plots at the Agricultural Research Institute, Wagga (S.W.S.). No outbreaks were recorded elsewhere this year.

STUNTING AND LITTLE LEAF (Virus) was recorded from the Riverina but reported to be present in a less severe form and to be causing little reduction in the bulk of feed.

LEAF SPOT (Cercospora sp.) was observed causing a severe blight of the outer leaves in stands at Koorainghat (C.C.) and Barooga (R.).

DAMPING OFF and STUNTING (Pythium sp. and Fusarium sp.) was recorded from irrigated seedling stands at Berrigan and Deniliquin (R). The affected pastures made little or no growth, many of the seedlings died and others remained stunted as a result of damage to the tap roots.

LEAF and PETIOLE GALL (Synchytrium aureum) was recorded for the first time in N.S.W. at Finley (R) in November.

STEM GALL (Physoderma trifolii) was recorded for the first time in N.S.W. at Finley (R) in October, and later at Wagga (S.W.S.) and Leeton (M.I.A.).

WHITE CLOVER (Trifolium repens).

RUST (Uromyces trifolii trifolii-repentis) was very severe in early spring at Maitland (C.C.), severe injury to the petioles causing considerable leaf shrivelling.

CROWN ROT (Sclerotium rolfsii) was recorded on the variety Ladino at Kyogle (N.C.).

FROST INJURY was severe at Maitland (C.C.) in August, the epidermis being lifted on leaves and petioles with death of many leaves.

BURN (Sphaerulina trifolii) was again recorded from Oberon (C.T.).

RED CLOVER (Trifolium pratense).

ROT (Sclerotinia sp.), which was recorded for the first time in N.S.W. last year, was observed at Dingo Creek (C.C.) in September.

LEAF SPOTS (Pseudopeziza trifolii, Ascochyta sp., Stagonospora recedens and Sphaerulina trifolii) were recorded from Oberon (C.T.) in December.

MOSAIC (Virus) was recorded from Oberon (C.T.) and odd plants were observed in other localities.

CROWN ROTS (Undet., Fusarium spp. and Rhizoctonia solani associated) were responsible for the death of many plants on the Central and North Coasts. The impermanence of red clover in coastal areas seems to be caused largely by this trouble, although the cumulative effect of the numerous diseases to which it is susceptible may well contribute.

ROOT KNOT (Meloidogyne sp.) was observed at Taree and Wingham (C.C.) and appeared to be responsible for the deterioration of the stands concerned.

HARE'S FOOT CLOVER (Trifolium arvense).

LEAF SPOT (Cercospora sp.) occurred at Barooga (R.) in November.

LUCERNE (Medicago sativa).

DAMPING OFF (Rhizoctonia solani) was reported from the Wagga (S.W.S.) district in a spring sown stand.

LEAF SPOT (Pseudopeziza medicaginis) was widespread as usual and caused defoliation in stands at Coonamble (C.W.P.) and Turrawan (N.W.P.). Pyrenopeziza medicaginis was also present at Coonamble.

DOWNY MILDEW (Peronospora trifoliorum) was recorded at Coonamble (C.W.P.).

CROWN ROT (Sclerotium rolfsii) occurred at Kyogle (N.C.).

BARREL MEDIC (Medicago tribuloides).

BLACK STEM (Phoma sp.) was recorded in variety No. 173 in the variety trials at Condobolin (C.W.P.) Experiment Farm.

BURR MEDIC (Medicago denticulata).

RUST (Uromyces striatus) was very severe at Baulkham Hills (M.A.).

COWPEA (Vigna sinensis).

STEM ROT (Phytophthora sp.) was again severe on the North Coast. Crops of Poona at Kyogle were badly affected and the variety Cristaudo was also attacked, although it is less susceptible than Poona. This disease limits the usefulness of cowpeas on the North Coast and will only be overcome by the introduction of resistant varieties. Mr. G. Purss of the Queensland Department of Agriculture and Stock has tested a large number of varieties and found that three possess a high level of resistance. Two of these, Blackeye 5 and C.P.I. 12153, are virtually immune under Queensland conditions, while C.P.I. 11044 has a very high field resistance. Also the variety Giant, which is already grown commercially in Queensland, is claimed to possess more resistance than Cristaudo.

GOLDEN TARES (Vicia sativa).

ROOT ROT occurred throughout a sod sown area at Raleigh (C.C.). The bottom half of the tap root of most plants had been rotted and many had died. Others, however, were showing evidence of recovery and were producing new roots from the crown region. Two types of root rot appeared to be present - a dark one and a light one. From roots affected with the dark root rot an unidentified brown fungus was isolated and from the light ones Sclerotium rolfsii.

LINSEED (Linum usitatissimum).

FROST DAMAGE occurred in the quarantine plots at the New England Experiment Farm, Glen Innes (N.T.). A late frost damaged the older leaves, which, in the case of linseed, are more susceptible than the younger.

PASMO (Mycosphaerella linorum) occurred widely as usual in northern districts but no reports of noticeable damage were received at the Biological Branch.

TOBACCO (Nicotiana tabacum).

BLUE MOULD (Peronospora tabacina) was observed at Bathurst (C.T.). There were no reports of severe damage this season, no doubt as a result of the unusually dry weather. Nevertheless this disease still remains the most important disease of tobacco in N.S.W. both in the seedbed and in the field.

LEAF SPOT (Alternaria sp.) was recorded at Tenterfield (N.T.).

CANE FRUIT.

No records.

CITRUS FRUITS.

PHYTOPHTHORA ROOT, COLLAR and FRUIT ROT (Phytophthora citrophthora). The very wet weather which affected the State in autumn and winter 1956 was followed by very dry conditions in most areas. This caused a rapid decline of trees whose root systems had been affected during the wet period. At the end of October the estimated number of trees dead or in a serious state of decline as the result of root and collar rot was as follows: Central Coast 2,625 acres, Cumberland (M.A.) and Orangeville areas (S.C.) 880 acres, Murrumbidgee Irrigation Area 270 acres, Orange and western districts (C.T., C.W.S.) 7 acres, and Lower Murray R. (W.D.)area 50 acres, making a total of 3,832 acres. Trees affected by root rot continued to decline throughout the summer and in some coastal orchards where floodings had occurred, collar rot also remained active, as summer temperatures were not particularly high and the fungus was evidently not killed out of active lesions by the dry conditions alone. Collar rot was reported from M.I.A. and Murray R. orchards where it is normally unknown.

Losses of fruit due to brown rot were only slight during late winter 1956, except at Orangeville (S.C.) where heavy losses of Valencia oranges and infection of branches occurred. No brown rot reports were received during winter 1957.

Nursery stock of rough lemon have been particularly healthy during the past season.

BROWN ROT and SHOOT BLIGHT (Phytophthora hibernalis). A heavy infection of fruit and foliage of Scarlett variety mandarin was reported in August from the Narara Citrus Experiment Station (C.C.). Fruit only of Citrus suhoiensis and Umatilla tangor were also affected but no other varieties were attacked.

BLACK SPOT (Guignardia citricarpa). Some early symptoms of black spot were seen on both sprayed and unsprayed trees in the Gosford area (C.C.) following strong north-westerly winds in August. The average spring temperatures were lower than usual and little further development was recorded until November when some heavy fruit fall occurred of unsprayed Valencia in the Gosford (C.C.), Hawkesbury River (M.A.) and Hills (M.A.) districts and by December some sprayed trees also were showing serious loss at Gosford. In the Camden area (S.C.), which is normally free of spot, an increase in disease incidence was reported in January.

MELANOSE (Diaporthe citri). Fruit and foliage infection was on the average less than usual due to dry conditions in coastal orchards throughout the season. In some Hawkesbury River (M.A.) orchards, however, especially those affected by flooding in the previous autumn, considerable infected dead wood is present and these developed a percentage of blemished fruit.

SCAB (Sphaceloma fawcettii scabiosa). Main crop lemons were for the most part free of scab, though some orchards in the Gosford area (C.C.) reported moderate infection. Intermediate crop fruit was almost free of disease.

Infection of rough lemon stocks in nurseries was less than usual.

BROWN SPOT (Cause not known). A slight amount of leaf and shoot blighting of early spring growth occurred but the very dry weather of late spring and summer was not conducive to infection and almost no losses of fruit have been seen.

SEPTORIA SPOT (Septoria depressa). Some Septoria spot was reported from unsprayed orchards in the Murrumbidgee Irrigation Areas in July, 1956. On the Murray River (R.) where conditions were conducive to infection in autumn 1956, Septoria spot was more severe than for many years and occurred in some settlements (Koraleigh, Goodnight, Barham) where previously it had been unknown or only rarely seen. The Washington navel crop suffered only slightly but Valencia oranges, grapefruit and intermediate crop lemons at Barooga, Tocumwal, Barham and Koraleigh developed considerable superficial spotting in October and November, associated with a certain amount of weather staining. The perfect stage of the fungus (a species of Mycosphaerella) was found abundantly on fallen lemon leaves in a Barooga orchard, and on fallen orange leaves at Leeton (M.I.A.).

SOOTY BLOTCH and FLY SPECK (Gloeodes pomigena and Leptotherium pomi). These diseases were reported as being prevalent, particularly in lowland orchards in the Gosford area (C.C.) in late winter 1956.

ARMILLARIA ROOT ROT (Armillaria mellea). The disease continues to cause loss of trees in the Maroota and Hawkesbury River districts (M.A.).

BRANCH BLIGHT (Sclerotinia sclerotiorum). This disease was recorded at Barham (R.) affecting young growth on 15 year old Washington navel oranges in spring, 1956. This district is normally too dry for such a disease to occur but winter and spring weather was unusually damp.

SUDDEN DEATH (undetermined). Additional cases were reported from Corbie Hill (M.I.A.) and the Gosford district (C.C.).

= Citrus exocortis

SCALYBUTT (Virus). The use of infected budwood from trees on sweet orange stock by a Mildura (Victoria) nurseryman has resulted in considerable development of scalybutt of Valencia orange on trifoliata on the newly established Coomealla Extension Settlement (W.D.).

SHELL BARK (Suspected virus). Shell bark symptoms have been reported from many lemon orchards in the Hills district (C.C.) during summer 1956. The very dry conditions and the heavy crop carried in the previous season appear to have resulted in more widespread and severe symptom expression than for about 6 years.

STEM PITTING (Virus). Position unchanged.

TRISTEZA (Virus). Position unchanged.

PSOROSIS-TYPE VIRUS (Florida gummosis). Position unchanged.

CRINKLE LEAF (Virus). Position unchanged.

PSOROSIS A (Virus). A catalogue of citrus trees affected with psorosis A is now nearly complete, following a spring survey in Murray River orchards (W.D. & R.). In one Barooga (R) orchard a block of about 4 acres of 40 year old Thompson navel oranges was found to be totally infected. However, only 25 trees showed stem symptoms and most were still large and productive trees.

ROUGH LEMON DECLINE (Suspected virus). Further cases of this disease were observed at Barham (R.) and Orangeville (S.C.).

ROOT KNOT (Meloidogyne sp.) developed very heavily on seedling rough lemon stocks at Bourke (W.D.) grown in heavily infested soil following a tobacco crop. Affected seedlings were very stunted.

YELLOW LEAF (Magnesium deficiency). This disorder continues to be a serious cause of tree decline in coastal orchards.

EXANTHEMA (Copper deficiency). Severe symptoms were seen in an orchard of 4 year old Valencia oranges at Orangeville (S.C.). Severe symptoms were also reported on Washington navel and Valencia oranges growing in sandy soil at Forbes (C.W.S.). This is only the second record of copper deficiency affecting citrus from the western part of the State.

MOTTLE LEAF (Zinc deficiency). This disorder was again rather prevalent in Hills district (M.A.), Pitt Town (M.A.) and Kurrajong (C.T.) orchards. It was also general in the western part of the State.

MANGANESE DEFICIENCY was again observed in a number of Hills district (M.A.) orchards and Pitt Town (M.A.), Kurrajong (C.T.) and Griffith (M.I.A.).

BORON TOXICITY. Severe leaf yellowing and defoliation of grapefruit, Valencia orange, lemon and rough lemon stock in a Koraleigh (R.) orchard were found to be due to boron toxicity.

Valencia orange trees in a Baulkham Hills (M.A) orchard showed conspicuous leaf pattern and heavy defoliation some months after the application of a thick mulch of sawdust. Sodium borate is used in the treatment of softwood in some mills for control of borer and it is evident that some contaminated sawdust was used in this case.

ACID SOIL INJURY. Very poor growth of trees on trifoliata stock in young orchards at Arcadia (M.A.) and Ebenezer (M.A.) was found to be due to excessive soil acidity. Failure of trifoliata in two nurseries at West Pennant Hills (M.A.) was also traced to this cause.

"WINTER YELLOWING" (Cause undetermined). No reports have been received this season.

SKIN SCALDING (Suspected weather damage) was seen on grapefruit and oranges at Euston (W.D.) and Barham, Barooga and Tocumwal (R.).

SALT TOXICITY. The Murray River was in high flood for about 5 months during winter and spring, 1956, and a number of orchards were inundated for periods of 3 to 5 months. This resulted in a build up of salt concentration in some sections, with consequent loss of trees. Heaviest losses were in the Boueil Creek, Gol Gol and Mallee Cliffs area (W.D.). At Curlwaa and Pomona (W.D.), which were surrounded by flood waters held back by levee banks for several months, the salting has been much less than anticipated and few trees were lost.

Following very wet conditions in autumn 1956, orchards in several sections of the Murrumbidgee Irrigation Areas were waterlogged for a greater part of the winter. Salt toxicity developed during spring 1956 in these sections and some hundreds of young trees, many on trifoliata stock, have been killed.

POME FRUITS.

APPLE.

BLACK SPOT (Venturia inaequalis). Fruit infection was generally light this season, though a moderate leaf infection occurred early in the season. Infection conditions were very favourable until late November, and the improved spraying schedule recommended by this Department afforded very good control of primary infection. Dry weather was experienced from December until harvest time in most districts and secondary infection was readily controlled with reduced schedules.

POWDERY MILDEW (Podosphaera leucotricha). Infection was very prevalent this season, particularly on Jonathan, Gravenstein and Kirks. The most severe infection occurred early in the season but with the onset of hot dry weather in early summer the progress of the disease slackened. Many growers were dissatisfied with the degree of control achieved by long schedules of sulphur sprays, which in turn caused considerable foliage injury. In experiments, control with Karathane was mediocre, but some growers claim to have achieved better control with it than with sulphur.

LIMB CANKER AND DIEBACK (Botryosphaeria ribis). The limb canker phase of this disease was very severe this season particularly in the Hills District (M.A.). Infection was most severe in those orchards which were not irrigated during the summer drought, or where irrigation was inadequate. The most severely affected varieties were Granny Smith, Willie Sharp and Kirks.

RIPE ROT (Gloeosporium sp.) Severe infection occurred on Willie Sharp at Gosford (C.C.) and in some orchards in the Hills district (M.A.).

APPLE MOSAIC (Virus) was again widespread.

GREEN CRINKLE (Virus). Very little green crinkle was evident this season. In the orchard at Uralla (N.T.) where severe symptoms occurred last season, very little fruit was affected this year.

DEFICIENCY DISEASES. Symptoms of boron deficiency were observed in many tableland orchards this season. Zinc deficiency was recorded on the Murrumbidgee Irrigation Areas and in the Metropolitan Area.

PHYSIOLOGICAL DISEASES. Bitter pit was prevalent in some orchards in the Metropolitan Area especially in the Willie Sharp variety. Severe crinkle (early surface watercore breakdown) occurred at Griffith (M.I.A.) and in some coastal orchards.

STEM ROT (Sclerotium rolfsii) killed many young trees in a nursery at Sylvania (M.A.).

WOOD ROTS (Polystictus spp., Schizophyllum commune and Corticium salmonicolor) were prevalent. Invasion of wounds, particularly during autumn 1956, was facilitated by prolonged periods of wet weather. Polystictus has caused some graft failures and has invaded many old trees. Schizophyllum has been very active in coastal districts, invading wounds on old trees, and particularly invading lesions caused by Botryosphaeria ribis on trees of any age. Corticium salmonicolor was very active in the Gosford (C.C.) and Kurrajong (C.T.) districts. Most of the infections which became evident in the late winter and spring, probably originated during the prolonged wet weather in the autumn of the previous season.

PEAR.

BLACK SPOT (Venturia pyrina). Infection was very heavy in many orchards in tableland areas and moderate to heavy on the Murrumbidgee Irrigation Areas. In the Central Tablelands and the South Western Slopes a severe infection period occurred in mid-October. At Batlow (S.W.S.) this infection period was of 108 hours duration and trees which were not adequately protected at the commencement of this period became severely infected. Mercury sprays, applied as soon as possible after the rain had ceased, were not effective in eradicating infections resulting from the intense spore flights which occurred at the beginning of the period.

BLAST (Pseudomonas syringae). Some blossom infection occurred but was not sufficient to cause crop reduction.

DEFICIENCY DISEASES. Boron deficiency was more evident than for some years.

VIRUS DISEASES. Stony pit again occurred at Orange (C.T.).

QUINCE.

FLECK (Fabraea maculata). Infection was general but less severe than last season.

STONE FRUIT.

ALMOND.

SHOT HOLE (Clasterosporium carpophilum). Severe infection occurred on non-sprayed trees.

RUST (Puccinia pruni-spinosae). Infection was less severe than usual.

APRICOT.

BACTERIAL CANKER (Pseudomonas syringae). Infection was more prevalent than for many years, especially on the

Murrumbidgee Irrigation Areas.

BROWN ROT (Sclerotinia fructicola). Blossom blight and shoot infection occurred in most orchards on the Murrumbidgee Irrigation Areas during the wet spring. However, the crop was harvested free of infection. Brown rot was recorded for the first time in the Koraleigh district (W.D.). Severe infection (approximately 50% crop loss) occurred in the maturing crop in one orchard only, under very dry conditions in mid-summer. This is believed to be a result of latent infection, the inoculation occurring during the wet spring. Inoculum which may have been introduced to the orchard in the previous season, in lug boxes from a Victorian cannery, is believed to have become established in the trees during the wet autumn of that season. It is reported that the first outbreak of brown rot also occurred in the nearby district of Swan Hill (Victoria) this season.

SHOT HOLE (Clasterosporium carpophilum). Severe infection occurred in the Metropolitan Area.

FRECKLE (Fusicladium carpophilum). Severe infection occurred on early maturing varieties in coastal districts in those orchards where inadequate control measures were applied.

RUST (Puccinia pruni-spinosae). Infection in coastal districts was less severe than usual.

ROOT ROT (Phytophthora cinnamomi). Heavy losses from P. cinnamomi infection occurred in young trees in coastal districts following flood rains through the late summer, autumn and winter of the previous season. Heavy losses (approximately 50,000 trees) of mature and young trees occurred on the Murrumbidgee Irrigation Areas following the above period of flooding. Pathogenic activity under water-logged conditions is believed to have played some part in these losses, although no pathogen has been isolated.

BLACK HEART (Verticillium dahliae). Infection was detected in some additional orchards at Griffith (M.I.A.).

SILVER LEAF (Stereum purpureum) was detected on two Glengarry apricot trees at Kurrajong (C.T.). The trees were destroyed.

CHERRY.

BACTERIAL CANKER (Pseudomonas syringae). Infection was much more severe than in recent years, especially at Orange (C.T.). Streptomycin sprays, applied to young trees through the autumn, failed to control the disease.

BROWN ROT (Sclerotinia fructicola). In contrast to recent seasons the harvesting period was dry and no loss from brown rot was sustained. There was practically no cracking of fruit this season.

VIRUS DISEASES AND VIRUS-LIKE CONDITIONS. The position has not changed since last season.

NECTARINE.

BROWN ROT (Sclerotinia fructicola) caused little or no loss this season.

FRECKLE (Fusicladium carpophilum). A light but general infection occurred in the Metropolitan Area, but it was readily controlled.

ROOT ROT (Phytophthora cinnamomi). Many trees died as a result of infection under waterlogged conditions the previous autumn. Some trees did not die until after the onset of dry weather in mid-summer.

RUST (Puccinia pruni-spinosae). Where control measures were neglected infection was heavy but less severe than last season.

LEAF CURL (Taphrina deformans.) Infection was general and severe on non-sprayed trees.

PEACH.

BROWN ROT (Sclerotinia fructicola). On the Murrumbidgee Irrigation Areas severe blossom and shoot infection occurred during the wet spring. The blighting was most severe in the lower sections of the tree, and may have been related to debility caused by prolonged waterlogging during the previous autumn and winter. However, in that district, as in all other districts, no major crop loss from brown rot was sustained. In most instances where infection occurred, there was evidence of skin damage from hail or insects.

ROOT ROT (Phytophthora cinnamomi). As a result of prolonged waterlogging through late summer, autumn and winter of last season, over 200,000 peach trees died in orchards in N.S.W. Many of these trees were killed by P. cinnamomi, but this fungus has not been detected on the Murrumbidgee Irrigation Areas where the greatest mortality occurred. There P. cryptogea was isolated from the upper roots of nursery trees and P. megasperma from the roots of young orchard trees. The pathogenicity of these two isolates has yet to be tested.

In the Sydney nurseries (M.A.) losses from P. cinnamomi infection were again very heavy.

The effectiveness of tile drainage in preventing tree losses from root rot was very evident.

RUST (Puccinia pruni-spinosae). Rust infection was lighter than for some seasons, but premature defoliation still occurred in many coastal orchards. Excellent control was achieved on early coastal varieties by the use of a schedule of zineb sprays.

LEAF CURL (Taphrina deformans). In coastal districts infection was very heavy but good control was achieved wherever sprays were applied adequately and properly timed. However, at Bathurst (C.T.) infection was reported to be very severe and widespread on sprayed trees. The disease was also very prevalent in the Murray River settlements from Tocumwal (R.) to Wentworth (W.D.).

FRECKLE (Fusicladium carpophilum). Infection was widespread but readily controlled.

SHOT HOLE (Clasterosporium carpophilum). Infection was general but light.

CROWN GALL (Agrobacterium tumefaciens) was again troublesome in nurseries.

WOOD ROTS (Polystictus spp. and Schizophyllum commune) were prevalent on trees which were damaged or weakened by root rot during the recent wet seasons.

ROOT LESION NEMATODE (Pratylenchus vulnus) was recorded on nursery trees at Speers Point (C.C.).

POWDERY MILDEW (Sphaerotheca sp.). Light infection of fruit was fairly common in the Hills district (M.A.) early in the season. In all cases heavily infected roses (Dorothy Perkins) were nearby.

PLUM.

BROWN ROT (Sclerotinia fructicola). Infection was light and generally confined to damaged fruit. At Young (S.W S.) brown rot developed on some prunes following physiological collapse of tissue at the distal end of the fruit.

RUST (Puccinia pruni-spinosae). Infection was lighter than in recent seasons in coastal and tableland districts. At Young (S.W.S.) very little infection occurred on prunes, except in low lying parts of a few orchards where rust became evident late in the season.

BACTERIAL SPOT (Xanthomonas pruni) was recorded at Medowie (C.C.) and Glen Innes (N.T.).

SHOT HOLE (Clasterosporium carpophilum). Leaf infection was general but relatively light.

TROPICAL FRUITS.

AVOCADO.

ROOT ROT (Phytophthora cinnamomi) was recorded at Murwillumbah (N.C.).

BANANA.

BUNCHY TOP (Virus). Records compiled by the Division of Horticulture show that a total of 4,168 infected plants were found and destroyed during the year, an increase of 1,019 plants on the previous year's figures. Bunchy top records for the four preceding years have been: 1952-53, 2427; 1953-54, 3164; 1954-55, 2809; and 1955-56, 3159.

Experiments to examine the effect on disease incidence of vector and ant control in plantations with a bad bunchy top history have given inconclusive results so far.

LEAF SPOT (Cercospora musae). Losses from leaf spot were again heavy in all banana areas though less severe than in the previous season. Some plants were denuded of foliage in the Richmond district (N.C.) as early as April.

ANTHRACNOSE (Gloeosporium musarum). In the Coffs Harbour district (N.C.) some losses were experienced in May with fruit cut from southern slopes of plantations and despatched to the Melbourne market. Prevailing dry conditions appear to have advanced rind maturity in relation to pulp maturity and favoured an earlier breaking of latency of the fungus.

PASSION FRUIT.

BROWN SPOT (Alternaria passiflorae). Dry conditions in the summer and autumn prevented losses from this disease.

FUSARIUM WILT (Fusarium oxysporum var. passiflorae). There was one further record of this disease from the

Murwillumbah (N.C.) district.

ROOT ROT (Phytophthora cinnamomi) was recorded from East Kurrajong (C.C.) in September, several thousand seedlings in a seedbed being affected.

MISCELLANEOUS FRUITS.

GRAPES.

DOWNY MILDEW (Plasmopara viticola). Very dry conditions prevailed throughout the State for most of the growing season. In the Camden (S.C.), Liverpool, Fairfield, Orchard Hills (M.A.), Orange-Molong (C.T.-C.W.S.), M.I.A. and Hunter River (C.C.) areas little or no downy mildew occurred and the number of spray applications made by growers was much fewer than usual. In the south-west part of the State the weather remained cool and damp until mid-November and some early development of downy mildew was reported from Koraleigh (R.). Subsequent dry weather in this section also, prevented any further extension.

BLACK SPOT (Elsinoe ampelina). Little development of this disease occurred in commercial vineyards. The now universal use of Thiram or Ziram at budswell and budburst has reduced black spot to a position of very minor importance.

DEAD ARM (Phomopsis viticola). Late winter and spring weather was unusually cool and moist in the M.I.A. which is normally dry and rather hot. This favoured infection of new cane growth, foliage and fruit bunches with the dead arm fungus. Damage to the crop was most severe in Palomino and Waltham Cross which were generally affected throughout the area. Some crops of Cornichon also suffered damage to bunches. Heavy infection of canes is expected to cause die back during winter and to increase pruning difficulties. Varieties which showed some infection of canes, but not of fruit, included Frontignac, sultana, currant, Pedro Ximines, Grenache, O'Hanez, Emperor, Valensi, Madeira, Doradillo, Rutherglen Tokay, Muscat Paradiso, White Grenache and Black Malaga. The disease was not controlled by applications of ziram or Bordeaux mixture. Some cane infection of Tokay and Grenache was observed at Corowa (R.).

SUSPECTED PIERCE'S DISEASE (Virus). A decline condition, evidently virus in nature, has been found in vineyards at Corowa (R.), Rooty Hill (M.A.) and Pokolbin (C.C.). The symptoms resemble closely those described for Pierce's disease in California. The present distribution of affected vines suggests that the disease has been present for many years and has been extending rather rapidly during the past 5-6 years, which have been rather wetter than average. A total of at least 750 acres appears to be involved. At Corowa the varieties mainly affected are Flame Tokay, Monbaden, Pinot, Alicante Bouschet and Grenache; at Rooty Hill, Traminer, Chasselas, Pinot-Hermitage, Charbonet and Madeira; at Pokolbin, Hunter River Riesling, Pinot, Traminer, Shiraz and Montils.

POWDERY MILDEW (Uncinula necator). Fairly heavy infection was reported from Menindee (W.D.) on black muscat in February. Late development of mildew was rather general in coastal vineyards following harvest.

FRUIT ROT (Botrytis cinerea, moulds and yeasts). No loss of fruit was reported in any part of the State.

BUNCH STEM DIE BACK (Undetermined). No records.

BORDEAUX BURN (Copper toxicity). In experimental spray trials at Orchard Hills (M.A.) copper toxicity resulted from the use of Bordeaux mixture 12-12-100, copper oxychloride and copper oxide sprays. Bordeaux 6-6-100 and Zinc Bordeaux caused much less burning.

SALT INJURY. Reports of salt injury were received from Orchard Hills (M.A.) and Pokolbin (C.C.) following extremely dry conditions.

DYING VINES (Causes unknown). A fairly heavy loss was experienced by a Koraleigh (R.) grower.

STRIPING. This disorder of black muscat was seen in a Liverpool (M.A.) vineyard and at Camden (S.C.). As the fruit matures streaks and blotches of lighter colour show up, making it unsaleable.

MUSCAT MOTTLE (Cause unknown) is causing increasing concern to growers in the Liverpool-Fairfield area (M.A.). A similar type of leaf pattern was seen on Hunter River Riesling at Pokolbin (C.C.).

BITTER ROT (Melanconium fuligineum) was reported on Isabella variety grapes in home gardens at Penshurst (M.A.) and Kempsey (N.C.).

? BLACK MEASLES (Unknown cause). Specimens of sultana foliage and fruit from Koraleigh (R.) showed symptoms which agree very well with description of this disease overseas. The condition is restricted so far to a few vines in several vineyards.

LOQUAT.

ROOT ROT (Phytophthora cinnamomi) was recorded at North Ryde (M.A.).

MULBERRY.

LEAF SPOT (Septogloeum mori). Infection was less severe than in recent seasons.

BACTERIAL SPOT (Pseudomonas mori) was of minor importance this season.

STRAWBERRY.

VIRUS DISEASES. Very prevalent.

LEAF DISEASES. SCORCH (Diplocarpon earliana), SPOT (Mycosphaerella fragariae) and BLIGHT (Dendrophoma obscurans) were of very slight importance.

POWDERY MILDEW (Sphaerotheca humuli) was reported from a home garden at Botany (M.A.), most varieties appeared to be resistant but the fruit of several varieties was heavily mildewed.

OLIVE.

FRUIT SPOT (Cercospora cladosporioides). This disease was reported from farms at Stony Point and Yanco (M.I.A.) causing 80% and 95% infection of fruit of the Verdale variety, during winter 1956. With the exception of Mission, which was slightly affected, no other olive variety appeared to be susceptible. At Wagga Agricultural College (S.W.S.) about 10% of the Verdale crop was infected but no other varieties

were attacked. No infection occurred in 1957. The 1956 outbreak which was severe on every tree of the susceptible variety at Yanco and Stony Point followed wet autumn and winter conditions. Though foliage infection had not been seen in this area, it is evident that the disease must have been present and widespread at a very low level in previous years.

ROOT ROT (Phytophthora cinnamomi). Some decline in tree health occurred in the Wagga College orchard (S.W.S.) following extremely wet conditions during autumn and winter 1956.

WALNUT.

BACTERIAL BLIGHT (Xanthomonas juglandis). Infection was quite heavy early in the season. However, dry summer weather generally, retarded the progress of the disease.

ORNAMENTALS.

ASH (Fraxinus excelsior).

FASCIATION (Non-parasitic) was recorded on an ash tree growing at Bathurst (C.T.). The affected limb was flattened and covered with small buds.

ASTER.

ROOT ROT (Various fungi) was widespread in the Sydney Metropolitan Area during the spring and was also reported from Albury (R.).

AZALEA.

LEAF SPOT (Septoria azaleae) and POWDERY MILDEW (Oidium sp.) were severe on several varieties during the autumn of 1957 and caused some defoliation.

BEGONIA.

POWDERY MILDEW (Oidium sp.) was very prevalent and caused serious damage to Rex Begonia plants at Beecroft (M.A.). Many young plants were killed.

ROOT KNOT (Meloidogyne sp.) was recorded for the first time in this State on tuberous begonias from Pymble (M.A.).

CAMELLIA.

ARMILLARIA ROOT ROT (Armillaria mellea) caused severe damage to some old camellias at Vaucluse House (M.A.). This is the first time this disease has been recorded on camellias in New South Wales.

CARNATION.

BRANCH WILT (Fusarium roseum) is rarely recorded in New South Wales but during the autumn caused severe damage to several carnation varieties at North Rocks (M.A.). The variety Frank Alldritt and other coloured varieties were severely affected but a white variety being grown was not attacked.

ROOT KNOT (Meloidogyne sp.) was making carnation growing impracticable on sandy soil at Umina via Woy Woy (C.C.).

LEAF SPOT (Septoria dianthi) was recorded from several places.

CHESTNUT (Castanea vulgaris).

ROOT ROT (Phytophthora sp.) was recorded on a Spanish Chestnut at Orange (C.T.).

CHRISTMAS BUSH (Ceratopetalum gummiferum).

GREENING (Tomato Big Bud Virus) occurred on one bush at Lambton (C.C.).

CHRYSANTHEMUM.

STUNT (Virus) was present in a commercial chrysanthemum crop at West Pennant Hills (M.A.).

ROOT ROT (Phytophthora cryptogea) caused severe damage during the winter following heavy autumn rains.

CROWN GALL (Agrobacterium tumefaciens) occurred in a commercial crop at Eastwood (M.A.). The varieties Edith Cavell and Lady Clarke were the only two affected. Some plants were killed and others flowered poorly.

CYCLAMEN.

FOLIAR NEMATODE (Aphelenchoides olesistus) caused severe damage at Eastwood (M.A.). Conditions were wet and favourable for the disease.

EUCALYPTUS.

POWDERY MILDEW (Oidium sp.) attacked eucalypt seedlings in many Forestry nurseries throughout the State during the spring.

FUCHSIA.

SHOOT BLIGHT (Undet.) was recorded on plants at Beecroft (M.A.). It is possible that the broad bean vascular wilt virus may be involved.

GERANIUM (Pelargonium hortorum).

BLACK ROT (Pythium sp.) occurred in a number of varieties of imported geraniums growing under quarantine conditions at Ermington (M.A.).

GERBERA.

POWDERY MILDEW (Oidium sp.) was recorded for the first time in this State from Beecroft (M.A.). It was more prevalent on shaded plants.

GLADIOLUS.

CORM DISEASES. During June, 1957, Inspectors under the Plant Diseases Act visited stores offering corms of gladiolus for sale. Numerous lines were prohibited from sale because of infection with one or more of the following:- Septoria gladioli, Sclerotinia gladioli, Fusarium oxysporum var. gladioli, Pseudomonas marginata.

GREENING (Tomato Big Bud Virus) was reported for the first time in New South Wales on gladiolus at East Cessnock (C.C.).

CALCIUM DEFICIENCY occurred on plants at Bangalow (N.C), causing drooping of the leaves and flower stalk.

HYACINTH.

STRIPE (Virus) caused severe mottling and striping of the leaves of hyacinths at Camden (M.A.). Leaves died off at the tips and flower production was reduced.

LILY (Lilium speciosum).

MOSAIC (Virus) was common in lily plants in many areas.

LUPIN.

SHOOT BLIGHT (Vascular wilt of Broad Bean virus) caused severe losses in lupin crops grown at Dundas (M.A.).

PANSY (Viola tricolor).

LEAF SPOT (Centrospora acerina) was recorded for the first time in New South Wales from Mascot (M.A.). The fungus causing this disease has a very wide host range of both ornamental and vegetable hosts.

PEONY. (Paeonia officinalis and P. albiflora).

BLIGHT (Botrytis sp.) was unusually severe at Mt. Wilson (C.T.) presumably owing to the protracted cool spring. It occurred first as a canker at ground level, later as a blight of the young leaves and eventually destroyed the majority of the flower buds.

PLANE TREE.

TWIG BLIGHT (Gnomonia veneta) affected the young shoots of trees growing at Leeton (M.I.A.) and Dubbo (C.W.S.).

POWDERY MILDEW (Oidium sp.) was prevalent on trees in many country areas.

PRIMULA

ROOT KNOT (Meloidogyne sp.) was recorded for the first time in this State on plants from Turramurra (M.A.).

RHODODENDRON.

ROOT ROT (Armillaria mellea) caused the death of a rhododendron at Vaucluse House (M.A.) during the spring.

ROSES.

ROSE WILT (Virus) was general in home gardens in the Metropolitan Area during the autumn.

BLACK SPOT (Diplocarpon rosae) caused severe infections during the spring.

STEM CANKER (Cercospora rosicola) was recorded for the first time in the State on multiflora stock seedlings selections at Kellyville (M.A.). Overseas, this fungus causes a leaf spot and does not appear to have been described as a canker former.

POWDERY MILDEW (Sphaerotheca pannosa) was unusually severe in Metropolitan gardens during the spring and appeared earlier than usual.

SAINTPAULIA.

LEAF NEMATODE (Aphelenchoides olesistus) was present in many parts of the Metropolitan Area, causing watersoaked spots on the leaves and eventually killing the plants.

STOCK.

A VIRUS DISEASE Caused severe damage to stock plants growing at Wyong (C.C.) during the winter. The early symptoms were a rolling inwards of the young leaves and a bending of the growing point to one side. This was followed by a prominent leaf pattern consisting of an initial vein clearing and then a yellowing of the whole leaf. Infected plants failed to make further growth and about 50% of the plants were affected.

SWEET PEA.

BLIGHT (Vascular Wilt of Broad bean virus) was recorded on plants coming into flower at Pendle Hill (M.A.) and infected about 50% of them.

FLOWER SPOTTING (Botrytis sp.) caused quite severe damage after rain at Epping (M.A.).

WILLOWS (Salix spp.)

LEAF SPOT (Cercospora salicina) was recorded for the first time in this State on willows at Kempsey (N.C.). Three species of willow were affected, Weeping Willow (Salix babylonica), Crack Willow (S fragilis) and Golden Willow (S. vitellina var. aurea).

VEGETABLES.

ARTICHOKE, JERUSALEM:

CROWN ROT (Sclerotium rolfsii) was recorded from a backyard garden at Whale Beach (M.A.).

ASPARAGUS: No records.

BEAN, FRENCH.

BEAN SEED CERTIFICATION SCHEME: the Bean Seed Certification was continued for the fourteenth successive season. The majority of crops were grown on the South Coast but a few at Wellington (C.W.S.) and Tenterfield (N.T.) were also certified. On the South Coast, 114 crops were certified, for a total estimated yield of 5826 bushels, made up of 3665 bushels of Brown Beauty, 850 bushels of Hawkesbury Wonder and smaller quantities of other varieties.

Fourteen crops were rejected for certification this season. Anthracnose was the main cause, accounting for 9 crops, followed by halo blight, which occurred in 3 crops. The other two were rejected because of weeds and lack of isolation.

ANTHRACNOSE (Colletotrichum lindemuthianum) caused heavy losses in many coastal bean crops this season. At Gosford (C.C.) many spring crops were severely damaged by the continued attack of anthracnose and halo blight and consignments of beans from the North Coast and Queensland arriving at the Sydney markets also showed pod damage due to anthracnose.

The testing work on the cross-bred material from Emeritus Professor W.L. Waterhouse has continued this year.

Approximately 1300 plants, representing 178 different cross-bred lines were tested for resistance to the two anthracnose races, Aust.6 and Aust.8. Many of the lines showed the dual resistance. These were F4 and F5 lines of the cross Hawkesbury Wonder x Westralia.

Many seed lines of other varieties have also been tested during the year and, as in the case of Brown Beauty, it has been found that different lines of the same variety vary in their reaction to a given race of anthracnose. Selections have been made from the variety Staleys Surprise, normally susceptible to Aust.6, which are resistant to this race.

HALO BLIGHT (Pseudomonas medicaginis var. phaseolicola). The damage caused by halo blight to coastal bean crops was more severe this season than for several years. The two main factors influencing this outbreak were the prolonged cool wet spring and the shortage of certified seed. In the Gosford (C.C.) area, large quantities of uncertified seed were sown and seed-borne halo blight attacked many crops. Weather conditions were favourable for its spread and many bean crops in the district were rendered useless. The value of certified seed was shown this season by the freedom from seed-borne halo blight of crops grown from such seed, although some did become infected later in their growth because of the proximity of a diseased crop.

Many growers attempted to stop the disease spreading by using as a spray at intervals of 4 - 7 days an aqueous solution of streptomycin nitrate at a strength of 100 p.p.m. In some cases, this treatment seems to have been responsible for stopping the disease but detailed trials will need to be carried out before any definite statement on the efficiency of such sprays can be made.

RUST (Uromyces phaseoli typica) was present in autumn bean crops but was not nearly as severe as last year, most probably because of the very dry season this year.

OTHER DISEASES recorded this year were STEM ROT (Fusarium solani f. phaseoli) which caused quite a lot of damage to Gosford (C.C.) crops in the spring, BACTERIAL BROWN SPOT (Pseudomonas syringae) which was also encouraged by the wet spring weather and the transit disease RUSSET (undetermined) which was present in several consignments from Queensland and the North Coast.

BEAN, BROAD.

VASCULAR WILT (Vascular wilt of broad bean virus). Severe infections on broad bean crops were not observed this season in the Sydney Metropolitan Area and the unusually warm autumn appeared to have generally depressed the incidence or symptom expression of the disease on broad bean crops in this locality. One record of almost 100% infection was made at Barooga (R.). A trace infection was observed at Maitland (C.C.) in June.

Severe damage was recorded on some ornamentals in the Sydney Metropolitan Area during the autumn and early winter, affected hosts being sweet pea, lupin, cornflower and Medicago arabica, the last two being first records for New South Wales.

BEETROOT AND SILVER BEET.

BEET EELWORM (Heterodera schachtii). During the year a survey was carried out on the property at Milperra (M.A.) on which this parasite had been recorded on beetroot in 1953. Some

spread of the eelworm from the raised beds on which it had originally been detected to other parts of the property had occurred. The highest infestation of viable cysts (0.01 to 0.115 per gram of soil) was found on the originally infested plots and dome plots adjacent to and downhill from these plots. Lighter infestations (0.005 viable cysts/gm. of soil) occurred on other raised beds further removed from the point of initial infestation.

There have been no further outbreaks of this disease and to date, this property is the only one known to be infested.

CERCOSPORA LEAF SPOT (Cercospora beticola) was present in trace amounts during the year but there were no records of economic losses.

LEAF SPOT (Centrospora acerina) was recorded for the first time in New South Wales, on silver beet, at Mascot (M.A.).

CARROT:

ROOT KNOT (Meloidogyne sp.). A 25% infection was recorded in a crop at West Maitland (C.C.).

CELERY:

LEAF SPOT (Septoria apii) caused severe damage to a crop of celery at Mona Vale (M.A.) and BACTERIAL SOFT ROT (Erwinia carotovora) was present in the same crop. Dull showery weather encouraged both these diseases.

CRUCIFERS:

BLACK ROT (Xanthomonas campestris). This disease was general in occurrence in crucifer crops this year and many records were made on cauliflowers, cabbages and turnips. In a few cases only, however, was economical damage to crops reported. These records included outbreaks of the disease on cabbage and cauliflower at Moorland (C.C.) and on cauliflower at Lagoon (C.T.), Gunnedah (N.W.S.) and Maitland (C.C.).

CLUB ROOT (Plasmodiophora brassicae) continues to assume increasing importance in the Richmond-Windsor area (M.A.), and in other crucifer growing localities in the outer Sydney Metropolitan Area. In one instance this season at Richmond, the disease rendered worthless 70% of a 3 acre cabbage crop. This crop was located on land where the disease had not previously been observed by the grower but onto which land a quantity of sand, apparently infested by the causal organism, has been washed by a recent flood.

RHIZOCTONIA DISEASE (Rhizoctonia solani). There were many records during the year of attack by this organism on crucifer crops. Principal damage was done to younger plants (wirestem) and, in one case, the loss of 10 square yards of seedlings in the seed bed was reported, from Mittagong (S.C.).

WHIPTAIL (Molybdenum deficiency) was recorded on a numoer of occasions, all these records being made in the Sydney Metropolitan Area.

WHITE LEAF SPOT (Cercosporella brassicae) was once more of importance at Rydal (C.T.) where it was responsible for moderate leaf infection in a 4 acre crop of Brussel's sprouts.

CUCURBITS:

DOWNY MILDEW (Pseudoperonospora cubensis). Generally dry conditions throughout the growing season depressed the severity of this disease. There were three records of slight damage in the Sydney Metropolitan Area, two of these records being on cucumber crops and one on rockmelon. Slight damage also occurred on a cucumber crop at Gosford (C.C.) in late autumn.

POWDERY MILDEW (Erysiphe cichoracearum). This disease was of general occurrence in cucurbit crops in the coastal area during the year. Records were made on pumpkin, marrow, squash and cucumber although there were no reports of heavy losses.

FUSARIUM FOOT ROT (Fusarium solani f. cucurbitae). This disease was recorded twice during the year, on pumpkin at Leeton (M.I.A.) and on squash at Sawtell (N.C.). Infection in both cases was light.

LEAF SPOT (Pseudomonas sp associated). A leaf spot disease of Heinz Pickling gherkin was observed in November at Wetherill Park (M.A.). The symptoms exhibited by infected leaves appeared similar in many respects to those described overseas for angular leaf spot (Ps. lachrymans) but in this case, there was no "tear drop" effect and, also, no infection of fruits had occurred although the infected vines were bearing fruit at all stages of maturity. Isolation from the infected leaves consistently yielded a bacterium of the genus Pseudomonas, the biochemical reactions of which agreed with those listed for Ps. lachrymans. However, it was not possible to reproduce the disease by inoculation to cucumber plants, so that, at present, the disease has not been conclusively diagnosed. The angular leaf spot disease has not been recorded in this State.

The disease occurred on gherkin crops on two properties at Wetherill Park and there was an obvious relationship between the infection and source of seed. On one property where ½ acre of gherkins was being grown, 60% of the plants from one source of seed showed light to severe leaf spotting. Adjacent to these plants, gherkins grown from another seed source showed only 1% lightly infected plants and it appeared obvious that infection was being spread to this section of the crop by spattering water from an overhead irrigation system. On the other property, where 75% of the plants had been grown from the same seed as those in which 1% infection was detected on the first property, no infection had occurred. In the remainder of the crop, where a different source of seed had been used, there was a trace of the disease.

YELLOWS (Molybdenum deficiency). Only one case of this disease was observed during the year, in a gherkin crop at Wetherill Park (M.A.). 40% of the plants were affected.

MOSAIC (Cucumber mosaic virus). Two cases of infection by this virus were recorded in cucumber crops in the Sydney Metropolitan Area during the year.

EGGPLANT: No records.

LETTUCE:

MOSAIC (Virus) was present in most lettuce crops to a small extent but in one crop at Maitland (C.C.) in which severe infection occurred, a large proportion of unmarketable heads was produced.

BACTERIAL WILT (Xanthomonas vitians) caused severe losses in a lettuce crop at Tamworth (N.T.). It appeared that infection followed damage by frost and it caused the loss of about 12,000 young plants.

ANTHRACNOSE (Marssonina panattoniana) was recorded from Parkes (C.W.S.), infection being severe on outer and inner leaves.

LEAF SPOT (Septoria lactucae) caused slight damage to the outer leaves of plants at Kenthurst (M.A.) and severely affected a small plot of the Green Mignonette variety at Carlingford (M.A.).

MUSHROOM - Cultivated strain.

EELWORMS. Eelworms of the genus Rhabditis were found during the year, infesting the caps and stalks of mushrooms grown in outdoor ridge beds at Dundas (M.A.). The infested mushrooms were growing on about 100 square feet of 30,000 square feet of ridge beds. The infestation of individual mushrooms was light and the eelworms, in a number of instances were associated with a diffuse bacterial blotch (possibly Phytomonas tolaasi). Overall loss of mushrooms because of eelworm infection and blotching was small. This is the first record of this eelworm on mushroom in New South Wales.

The eelworm Paraphelenchus pseudoparietinus was found infesting a bottle of commercial mushroom spawn produced at Cabramatta (M.A.). This is the first record of this eelworm attacking mushroom spawn in New South Wales. The spawn in the infested bottle had degenerated and the grain medium had taken on a reddish discoloration. The spawn had been run from a mushroom taken from an outdoor ridge bed and it is possible that the contamination had occurred from the mushroom.

OTHER DISEASES. Generally, mushroom crops have been free of diseases and competitors during the year. There have been individual records of BUBBLES (Mycogone perniciosa), in one case causing moderate loss, and BROWN SPOT (Verticillium sp.). WHITE GILL OR FLOCK (cause undetermined) has been troublesome in some instances, causing light losses. WHITE PLASTER MOULD (Scopulariopsis fimicola) and BROWN PLASTER MOULD (Myriococcum praecox) were each recorded once during the year as was a cup fungus Peziza sp. Contamination of newly planted grain spawn by Trichoderma sp., Chaetomium olivaceum and Penicillium sp. caused some concern early in the season necessitating respawning in some instances.

ONION:

WHITE ROT (Sclerotium cepivorum) was present in several coastal onion crops this season. In one crop at Merewether (C.C.), 70-80% of the plants were affected.

PARSNIP:

CANKER and LEAF SPOT (Itersonilia sp.) was recorded from a number of Metropolitan Area market gardens, causing a reduction in the yield of marketable roots.

ROOT KNOT (Meloidogyne sp.) caused a 10-20% reduction in yield in a crop at Kenthurst (M.A.).

PEA:

BACTERIAL BLIGHT (Pseudomonas pisi) caused severe damage to pea crops in many areas during the wet spring. In one crop at Inverell (N.W.S.), where a loss of 75% was experienced, frost damage had encouraged the spread of blight and increased the loss.

DOWNY MILDEW (Peronospora viciae) was recorded in crops from Young (S.W.S.) in the autumn.

PEPPER: No records.

POTATO:

PURPLE-TOP WILT (Tomato Big Bud Virus). Outbreaks of this disease were recorded in practically all potato growing areas during the year. Severity of infections varied within and between the various localities.

Purple-top wilt did not reach significant proportions in most of the early and mid-season north coast crops. Some trace infections only being reported up to the end of February. The disease was of no consequence in the Taree area (C.C.) although 3-5% infections occurred in the Hunter River area (C.C.). in late summer. Autumn crops in this locality were free of the disease. In the Sydney Metropolitan Area, up to 70% infection was recorded, in one crop at Pitt Town, and 5-20% in some other crops. The remainder of the crops showed about 3% infection towards the end of the season.

Spring crops at Dubbo and Wellington (C.W.S.) were severely affected. The spring and summer conditions in the central coastal areas and the central western slopes were very dry during the growing period and infective leaf hopper migratio into potato crops had apparently resulted. This is the first season since 1951, which was also dry, that heavy losses, resulting from purple-top wilt infections had been recorded in some spring potato crops.

Dry seasonal conditions continued during the growth of the main tableland crops and the effect of this was reflected in higher than usual incidence of purple-top wilt in many areas. At the time of the first certification inspection on the norther tablelands, (mid February) an overall purple top wilt infection of 2-3% was observed. Infections in individual crops at Glen Innes, Guyra, Ben Lomond, Black Mountain and Brockley, varied from less than 0.1% to a maximum of 12%. Little roguing of affected plants had been carried out up to the time the inspection was made and the infection percentage could be assessed accurately.

Affected plants exhibited varying stages of symptom expression but generally, it was apparent that infection had occurred some 6-8 weeks previously. A feature of the disease was the distribution of affected plants in a number of the crops, the greatest number of such plants being located towards the western edge of the crop. The number of affected plants tapered towards the eastern side. On many previous occasions, it has been observed that purple-top wilt affected plants tended to be concentrated towards the periphery of the crop.

On the central tablelands, the disease first appeared in mid February when a moderate infection was reported from Rydal. By mid autumn purple-top wilt was general throughout the Oberon, Blayney, Millthorpe and Orange districts. At Oberon the highest infection recorded was 5% with an average throughout the district of 2-3%. At Blayney and Millthorpe

the incidence of purple-top wilt varied from less than 1% to 10%. 10% of the acreage submitted for certification on the Central Tablelands was rejected because of a greater than 5% purple-top wilt content. It appeared that a migration of infective leaf hoppers had taken place about the end of December and there was little leaf hopper activity after that time. In the Orange district, overall infection was about 1-2% with negligible loss. In the Crookwell section of the southern tableland no significant loss was caused by purple-top wilt and in the Batlow area, traces of the disease only were recorded.

LEAF ROLL (Virus). For the second successive year no crops submitted for certification were rejected because of excess leaf roll content. This again indicates that a high degree of freedom from this disease has been maintained in certified seed. This freedom from leaf roll was further borne out by the fact that, on the central tablelands, a light to moderate population of the vector Myzus persicae was observed in some of the crops.

MILD MOSAIC (Potato Virus X + Potato Virus A). This disease was observed in three crops of the variety Walanga submitted for certification on the northern tablelands. Infection varied from less than 1% to 3%. The disease was not observed in any other variety.

COMMON SCAB (Actinomyces scabies). Dry conditions on the central tablelands were conducive to a moderate infection of common scab and of particular interest was the performance of the variety Ontario in this area. Two crops of this variety growing in the same field as a number of other varieties, were inspected. In one case tubers of the varieties Crana and Walanga were showing moderate to severe scabbing while the incidence on Ontario tubers was very light and superficial. In the other instances, in a variety trial, the Ontario tubers were also lightly scabbed and those of other varieties in the trial heavily scabbed. The variety Ontario was selected as a result of previous trials in this area, as one of the parents in this Departments breeding programme for scab resistance in potatoes.

A number of specimens of scabby potatoes were received from the coastal area during the year.

LATE BLIGHT (Phytophthora infestans). In contrast to the previous season, this disease was of no economic importance. Dry spring and summer conditions in the principal potato growing areas militated against the disease. There were only two records of a minor nature from the Sydney Metropolitan Area.

Testing work on the reactions of this Departments seedling lines to the "C" race of late blight has been continued. This years tests showed that a number of seedlings derived from the Scottish seedling 835a-4, the German seedling 19162 and the American variety Cortland, were immune to this race of late blight.

FUSARIUM WILT (F. oxysporum f. tuberosi) was of some importance this year in the tableland crops. Less than 1% infection was observed in two crops at Guyra (N.T.). Two crops at Millthorpe (C.T.) were rejected from certification for a greater than 1% Fusarium Wilt content at the second inspection, the higher incidence being 3%. Traces of the disease were also observed in other crops at Blayney (C.T.) and Millthorpe and also were reported from Crookwell (S.T.).

BLACKLEG (Bacterium carotovorum). Incidence of this disease was not generally serious in the coastal spring crops.

In the Clarence River area (N.C.) up to 4% infection was recorded and, in that locality, it appeared that the incidence of blackleg was related to the amount of injury to the plants by black beetle. Where heavy dieldrin application had controlled this parasite less than 1% blackleg was observed. Where light dieldrin applications had not been so effective in black beetle control, up to 4% blackleg occurred. The greatest incidence of the disease occurred on the Sebago variety but it was noted in other varieties.

Slight infection occurred at Taree (C.C.) where again, Sebago was the variety most affected. About this time also, moderate blackleg was reported in some irrigated crops at Maitland (C.C.) and trace amounts occurred in crops in the Sydney Metropolitan Area.

The incidence of blackleg in the tableland crops was insignificant.

BROWN ROT (Bacterium solanacearum). This disease caused significant losses in some coastal spring crops in spite of a relatively cool season. The disease was also recorded from Parkes (C.W.S.) in December.

SPOTTED WILT (Tomato Spotted Wilt Virus). Two plants affected with this disease were detected in a crop at Kempsey (N.C.). Infection was secondary.

BROWN FLECK (Undet.). There were a number of records of this disease from the Sydney Metropolitan Area.

HOLLOW HEART (Physiological). The variety Sequoia is losing popularity in the Murrwillumbah and Richmond River areas (N.C.) because of its susceptibility to hollow heart.

FROST DAMAGE was of importance in crops on the Clarence River and at Kyogle (N.C.) during late winter. On the Clarence River 400 acres were frosted to a moderate or severe extent and it was estimated that, in 30% of the plants, growth was very adversely affected. Heavy frosts in August at Kyogle checked growth. On both areas there was reasonable recovery in the spring.

RHUBARB:

Rhubarb plants were generally free of disease during the year although one heavy infection of DOWNY MILDEW (Peronospora jaapiana) occurred at Maitland (C.C.) and a light infection of LEAF SPOT (Phyllosticta straminella) was recorded at Kenthurst (M.A.).

SWEET POTATO: No record.

TOMATO:

YELLOW TOP (Virus) was widespread but of lower incidence than last year. No records were received prior to December though several crops had been inspected in the Metropolitan Area during November. In December 5% of 2,000 plants were observed to be affected at Pendle Hill (M.A.). Infection ranged from less than 1% to 25% in individual crops at Leppington (M.A.) in January though most crops contained from 2 to 5% affected plants. In January at Wamberal (C.C.) a crop of Grosse Lisse was grown immediately alongside a crop of Rouge de Marmande of the same age and yellow top affected 90% of the Grosse and only a few of the Rouge de Marmande. A mixed crop of Grosse Lisse and Red Cloud was inspected at Mona Vale (M.A.) and 25% of each variety was affected.

SPOTTED WILT (Tomato Spotted Wilt Virus). As usual in recent years spotted wilt was absent or of no importance in the majority of tomato crops in the Metropolitan Area. A 7% infection of 1½ acres of plants at the early flowering stage was reported from Griffith (M.I.A.) in December and outbreaks of unrecorded severity occurred on the far North Coast. Infection of 4% of 8,000 plants at Nowra (S.C.) and undetermined losses at Orange (C.T.) were reported in early April.

EARLY BLIGHT (Alternaria solani) was present in all coastal crops but was held in check by sprays including Bordeaux mixture, copper oxychloride and Zineb.

FUSARIUM WILT (Fusarium oxysporum f. lycopersici) caused losses of fully susceptible varieties on the Murrumbidgee Irrigation Areas, the Metropolitan Area and at Soldier's Point (C.C.).

BACTERIAL SPOT (Xanthomonas vesicatoria) was reported in several crops in the Gosford (C.C.) district in March; however, little damage was caused as the weather was dry. Bordeaux mixture 1-1-10 was used on affected crops. No reports were received from the North Coast.

BACTERIAL CANKER (Corynebacterium michiganense). More reports of this disease were received than for several years past. Isolated cases occurred in several areas in coastal districts. Affected plants were also located at Coonabarabran (N.W.P.).

BACTERIAL WILT (Pseudomonas solanacearum) caused some damage in Metropolitan crops and on the North Coast during spring.

ROOT ROTS. Several losses occurred in heavily watered glasshouse crops in the Warriewood-Mona Vale areas as the result of attack by Phytophthora cryptogea. Other losses, due to Selerotinia sclerotiorum, were common in the Glenorie-Kenthurst (M.A.) district.

ROOT KNOT (Meloidogyne sp.) was widely distributed in light coastal soil. One noticeable feature was the development of new galls during May and June.

DROP HEAD WILT (virus) caused some losses in the Warriewood-Mona Vale glasshouses. It has never been observed elsewhere.

MISCELLANEOUS PLANTS.

COBBLER'S PEGS (Bidens pilosa)

WILT (Broad bean wilt virus) was again observed in the Metropolitan Area but was not as widespread as last year.

DIGITALIS (Digitalis lanata)

ANTHRACNOSE (Collectotrichum fuscum) caused severe damage to a commercial crop growing at Epping (M.A.).

VARIABLE GROUNDSEL (Senecio lautus).

WHITE RUST (Albugo ? tragopogi) was widespread in the Maitland (C.C.) region. This is the first record of the disease in N.S.W.

Items marked x to be noticed already

NEW PLANT DISEASES.

During the twelve months ending the 30th June, 1957 the following diseases were recorded for the first time in New South Wales.

Agaricus hortensis (Cultivated mushroom). - Paraphelenchus pseudoparietinus (Micol.) Micol. (Nematode associated with degeneration of grain spawn) Cabramatta (Sydney Metropolitan Area); - Rhabditis sp. (Nematodes associated with bacterial spotting of cap); Dundas (Sydney Metropolitan Area).

Allium ascolonicum (Eschalot). - Sclerotium cepivorum Berk. (White rot), Hurstville (Sydney Metropolitan Area).

Begonia tuberhybrida (Begonia). - Meloidogyne sp. (Root knot); Pymble (Sydney Metropolitan Area).

Beta vulgaris L. (Silver Beet). - Centrospora acerina (Hartig.). Newhall (Leaf spot); Mascot (Sydney Metropolitan Area).

Bidens pilosa (Cobbler's pegs). - Tomato big bud virus (Greening); Colo River. (Sydney Metropolitan Area).

Camellia japonica (Camellia). - Armillaria mellea (Vahl. Ex Fr.). Quel. (Armillaria root rot); Vaucluse (Sydney Metropolitan Area).

Cardamine intermedia (Wintercress). - Centrospora acerina (Hartig.) Newhall (Leaf spot) Mascot (Sydney Metropolitan Area).

Cissus hypoglauca (A wilt grape). - Plasmopara viticola (Berk. and Curt.) Berk. and De Toni (Downy Mildew); Church Point (Sydney Metropolitan Area).

Citrus spp. - Corynespora citricola Hughes (Leaf spot); Botanic Gardens (Sydney Metropolitan Area).

Corylus avellana (Hazel nut). - Gloeosporium perexiguum Sacc. (Leaf and shoot blight); Oberon (C.T.).

Daphne adora (Daphne). - Tomato Big bud virus (Greening); Culcairn (R.).

Eupatorium adenophorum (Crofton Weed). - Cercospora eupatorii Peak (Leaf spot); Murwillumbah (N.C.) (1954).

Euphorbia prostrata. - Uromyces proeminens euphorbiicola (Tranz.) Arthur (Rust); Lismore (N.C.).

Foeniculum vulgare (Fennel). - Tomato big bud virus (Greening) Richmond (Sydney Metropolitan Area).

Geranium pilosum (A wild Geranium). - Peronospora conglomerata (Downy Mildew): Dorrigo (N.C.) (1953).

Gerbera jamesoni (Gerbera). - Oidium sp. (Powdery mildew); Beecroft (Sydney Metropolitan Area).

Gladiolus hortulanus (Gladiolus). - Suspected Tomato big bud virus (Greening); East Cessnock. (C.C.).

Holcus lanatus (Yorkshire Fog). - Ustilago striaeformia (Wessendorp) Niessl. (Smut); Oberon (C.T.).

Hypericum perforatum (St John's Wort). - Meloidogyne sp. (Root knot); Botanic Gardens (Sydney Metropolitan Area).

Kalanchoe sp. var, Tom Thumb. - Aphelenchoides olesistus Ritzema-Bos (Leaf nematodes), Ermington (Sydney Metropolitan Area).

Lolium rigidum (Wimmera rye grass). - Ovularia pusilla (Ung.) Sacc. and D. Sacc.) (Eye Spot); Wagga (S.A.S.) (1956).

Medicago arabica (Spotted medic). - Broad bean wilt virus: Pennant Hills (Sydney Metropolitan Area).

M. tribuloides (Barrel medic). - Phoma medicaginis Malbr. and Roum. (Black stem); Condobolin. (C.W.P.).

Narcissus pseudo-narcissus (Daffodil). - Stromatinia narcissi Drayton and Groves (Scale speck fungus), Cowra. (C.T.).

Nemesia strumosa (Nemesia). - Centrospora acerina (Hartig) Newhall (Leaf spot); Mascot (Sydney Metropolitan Area).

Mina lobata. - Tomato big bud virus (Greening); Windsor (Sydney Metropolitan Area).

Peperomia magnolifolia. - Aphelenchoides olesistus Ritzema Bos. (Leaf nematode); Ermington (Sydney Metropolian Area).

Phaseolus vulgaris (Bean). - Ascochyta sp. (Leaf spot); Bega, (S.C.) (1953).

Primula malacoides (Primula). - Meloidogyne sp. (Root knot); Turramurra (Sydney Metropolitan Area).

P. obconica (Primula). - Aphelenchoides olesistus Ritzema Bos. (Leaf nematode); Ermington (Sydney Metropolitan Area).

Prunus persica (Peach). - Meloidogyne incognita var. acrita (Koford and White) Chitwood (Root Knot); Speer's Point (C.C.). Meloidogyne javanica (Treub.) Chitwood (Root Knot); Griffith (M.I.A.); Pratylenchus vulnus Allen and Jenson (Root lesion nematode); Speer's Point, (C.C.).

Raphiolepis indica (Indian hawthorn). - Spilocoea sp. (Black spot); Castle Hill (Sydney Metropolitan Area).

Rosa multiflora (Rose). - Cercospora rosicola Pass. (Stem canker); Kellyville (Sydney Metropolitan Area).

Saintpaulia ionantha (African Violet). - Aphelenchoides olesistus Ritzema Bos. (Leaf nematode); Rydalmere (Sydney Metropolitan Area).

Salix babylonica (Weeping Willow). - Cercospora salicina Ell. and Ev. (Leafspot); Kempsey (N.C.).

Senecio lautus (Variable Groundsel). -Albugo Sp. (White rust); Maitland (C.C.).

S. petasitis. - Broad bean wilt virus (Blight); Pennant Hills (Sydney Metropolitan Area.

Sisymbrium irio (London Rocket). - Albugo candida (Pers. ex Chev.) Kunze (White rust); Euston (W.D.).

S. officinale (Hedge Mustard). - Albugo candida (Pers. ex Chev.) Kunze (White rust); Baulkham Hills (Sydney Metropolitan Area).

S. orientale (Mustard). - Albuga candida (Pers. ex Chev.) Kunze (White rust); General (old record).

Solanum tuberosum (Potato). - Phytophthora cryptogea Pethybr. and Laff (Pink rot); Wentworth Falls. (C.T.).

Telopea speciosissima (Waratah). - Hansfordia telopeae Hans. (Leaf spot); Gosford (C.C.).

Tieghemopanax elegans. - Armillaria mellea (Vahl. ex Fr.) Quel (Armillaria root rot); Cheltenham (Sydney Metropolitan Area).

Trifolium alexandrinum (Berseem Clover). - Kabatiella caulivora (Kirchn.) Karak. (Scorch); Maitland (C.C.).

T. arvense (Haresfoot clover). - Cercospora zebrina Pass. (Leaf spot); Barooga. (R).

T. subterraneum (Subterranean clover). - Synchytrium aureum Schroet. (Leaf and petiole gall); Finley (R); Physoderma trifolii (Passer) Karling (Stem gall); Finley (R), Leeton (M.I.A) and Wagga (S.W.S.).

Triticum aestivum (Wheat). - Cercosporella herpotrichoides Fron. (Eye Spot); Wagga (S.W.S).

Tropaeolum majus (Nasturtium); Tomato big bud virus (Greening); Uranquinty (S.W.S.).

Uncinia compacta. - Cintractia caricis (Pers.) Wagn. (Smut); Mt. Kosciusko (S.T.) (1947).

Verbena bonariensis (Verbena). - Meloidogyne sp. (Root Knot) ; Green Point (Sydney Metropolitan Area).

Vicia sativa (Golden Tares). - Sclerotium rolfsii Sacc. (Root Rot); Raleigh (N.C.).

Viola tricolor (Pansy). - Centrospora acerina (Hartig) Newhall (Leaf spot); Mascot (Sydney Metropolitan Area).

Vitis vinifera (Sultana). - Suspected Black measles (cause undetermined); Koraleigh (W.D.).

Wistaria sinensis (Wistaria). - Armillaria mellea (Vahl. ex Fr.) Quel. (Armillaria root rot); Vaucluse (Sydney Metropolitan Area).